the journey to restore America's Everglades

Restoration of the Everglades

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Topics

- Background
- The Restoration Effort
- Restoration of the Kissimmee River

South Florida Ecosystem

- Area - 18,000 square miles
- Population today - 6.5+ million

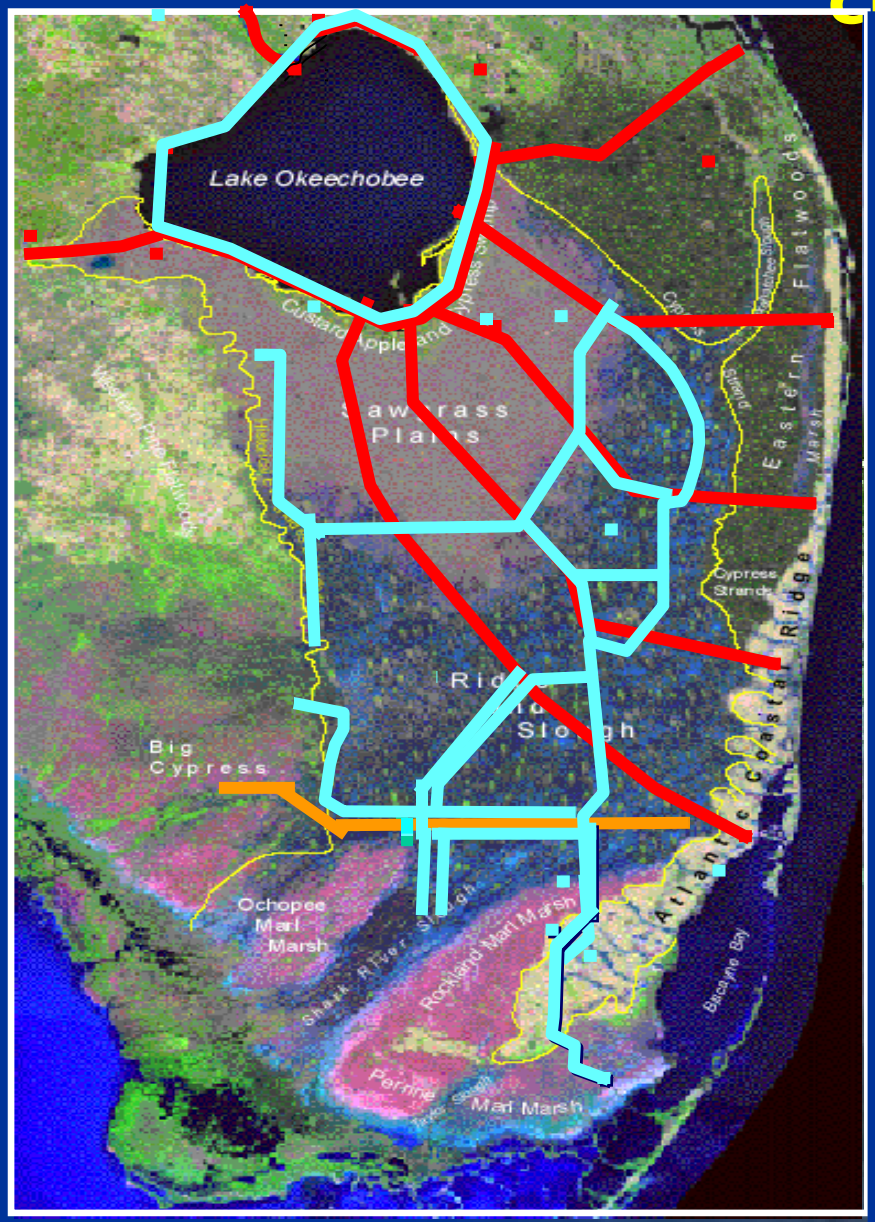
The Historic Everglades Ecosystem "River of Grass"

- Large spatial scale
- Highly diverse mosaic of plant communities
- Dynamic storage and sheetflow
- Wet and dry hydrologic cycles
- Ecosystem adapted to low amounts of nutrients

The Everglades: "They were changeless. They are changed."

- Marjory Stoneman Dougla

C&SF Project



Construction of the South Dade System

1965-1983

Central & Southern Florida Project

(C&SF Project)

- **Purposes**: Flood control, water conservation and control, salt water intrusion, fish and wildlife, water supply to Everglades National Park, and environmental restoration

- **Features**: 46 bridges, 10 locks, 670 miles of canals, 809 miles of levees, 130 control and diversion structures, and 16 pump

South Florida Flourished

Large freshwater discharges freshen estuaries

Soil Subsidence in the Everglades Agricultural Area

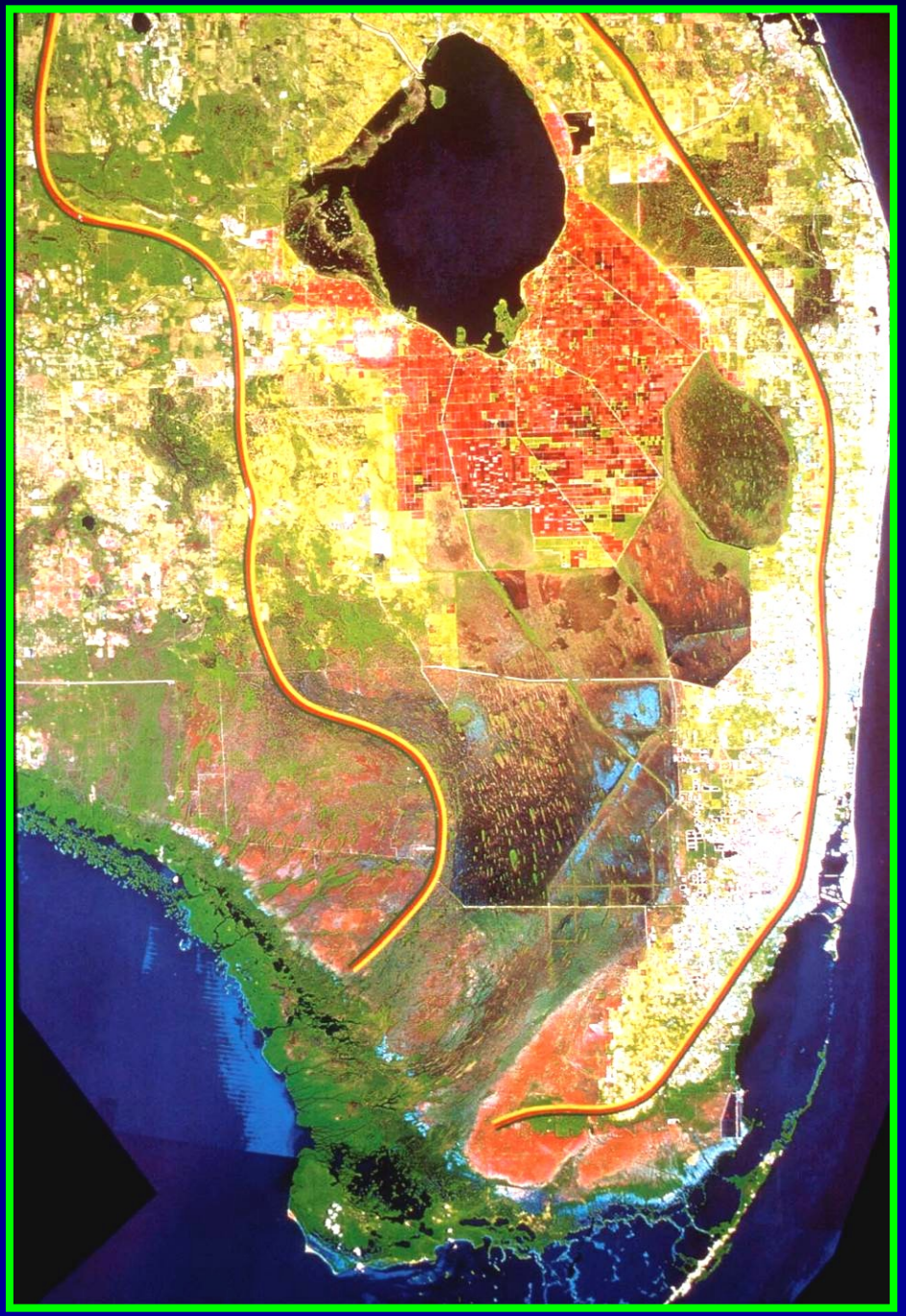
The addition of phosphorus causes cattail problems in Everglades marshes

Exotic and invasive species have altered the ecosystem

Ever expanding population with demands for land, flood control, and

An Ecosystem in Trouble…

- Too much/too little water for the Everglades/south Florida ecosystem
- 50 percent reduction in spatial extent of natural system
- Massive reductions in wading bird populations
- Degradation of water quality
- Repetitive water shortages and salt water intrusion
- Declining estuary health
- 1.7 billion gallons of water a day wasted to tide



YWCA

Getting The Water Right

68 CERP Components

Surface Water Storage Reservoirs – 180,000 acres

Aquifer Storage & Recovery – 330 wells

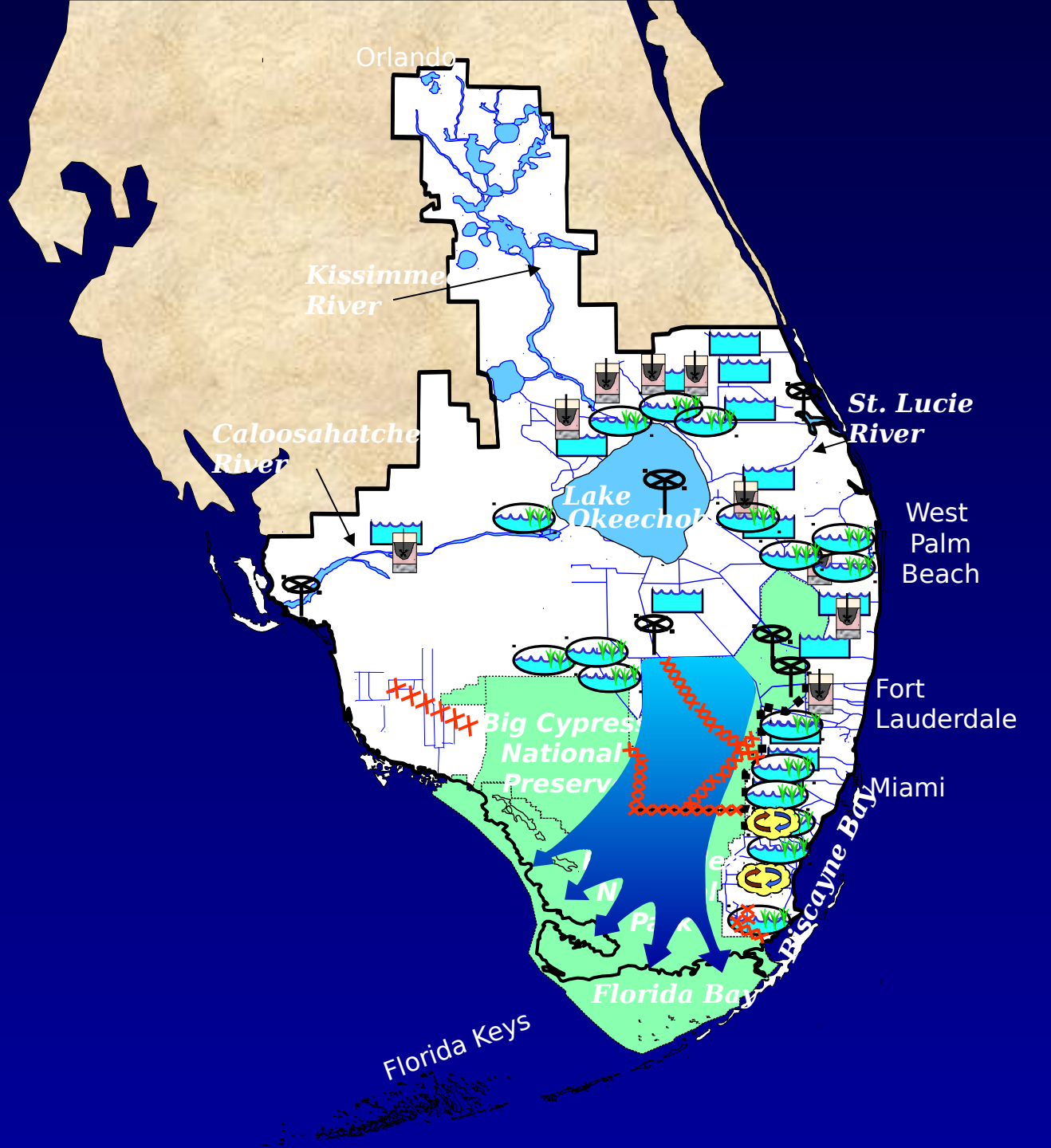
Stormwater Treatment Areas (STAs) – 36,000 acres

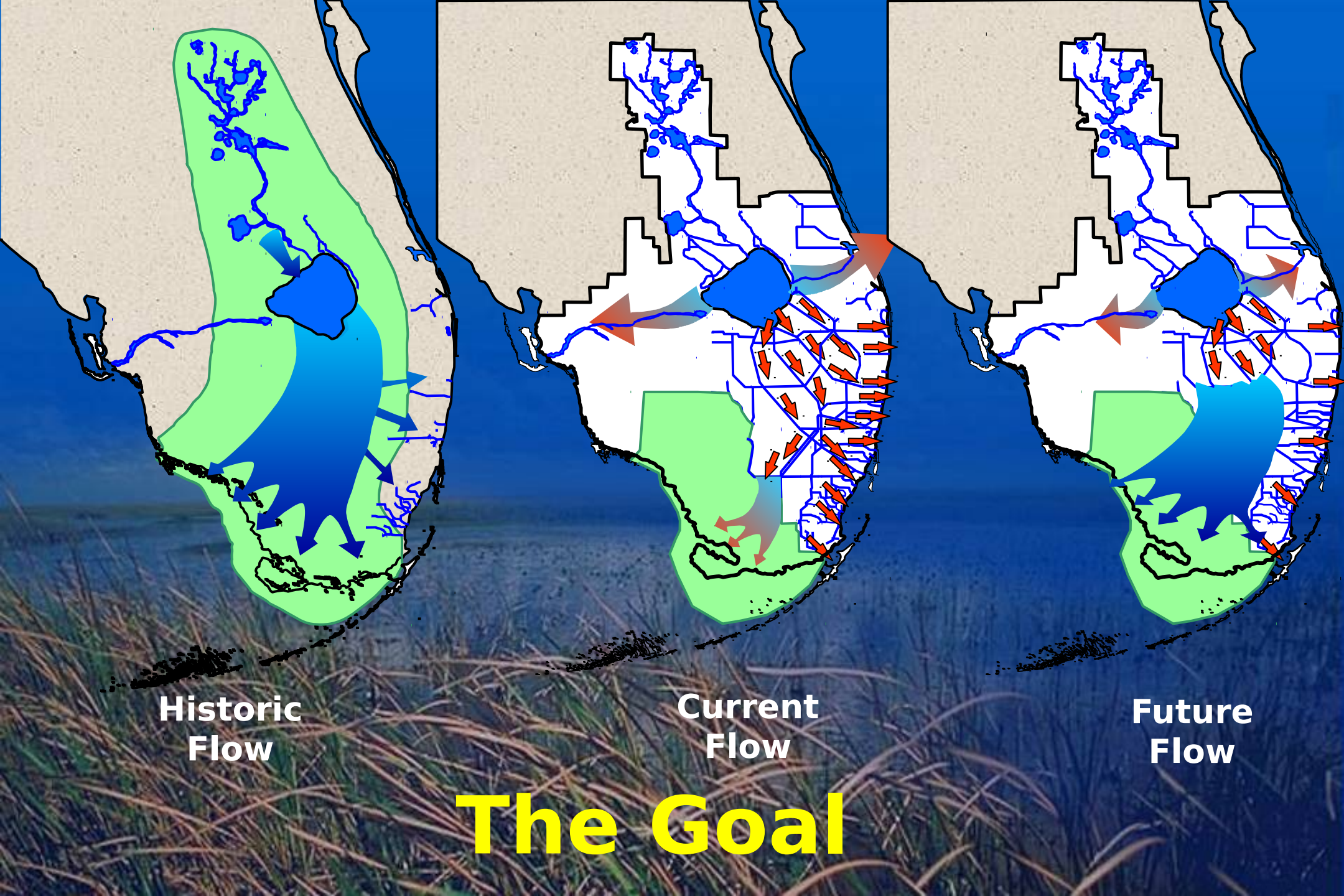
Reuse Wastewater – 2 Regional plants

Seepage Management

Removing Barriers to Sheetflow – 240 miles

Operational Changes - Rainfall Based Deliveries




Historic Flow
Current Flow
Future Flow
The Goal

The Partnership

- South Florida Water Management District (SFWMD) is primary partner
- Current cost of $10.9 billion over 30+ years to implement
- $172 million each year to operate & maintain

Why Adaptive Management?

- Conceptual nature of Comprehensive Plan
- Technology uncertainties
- Modeling uncertainties
- Ecologic response uncertainties

Pilot Projects

1 **Lake Okeechobee ASR Pilot**

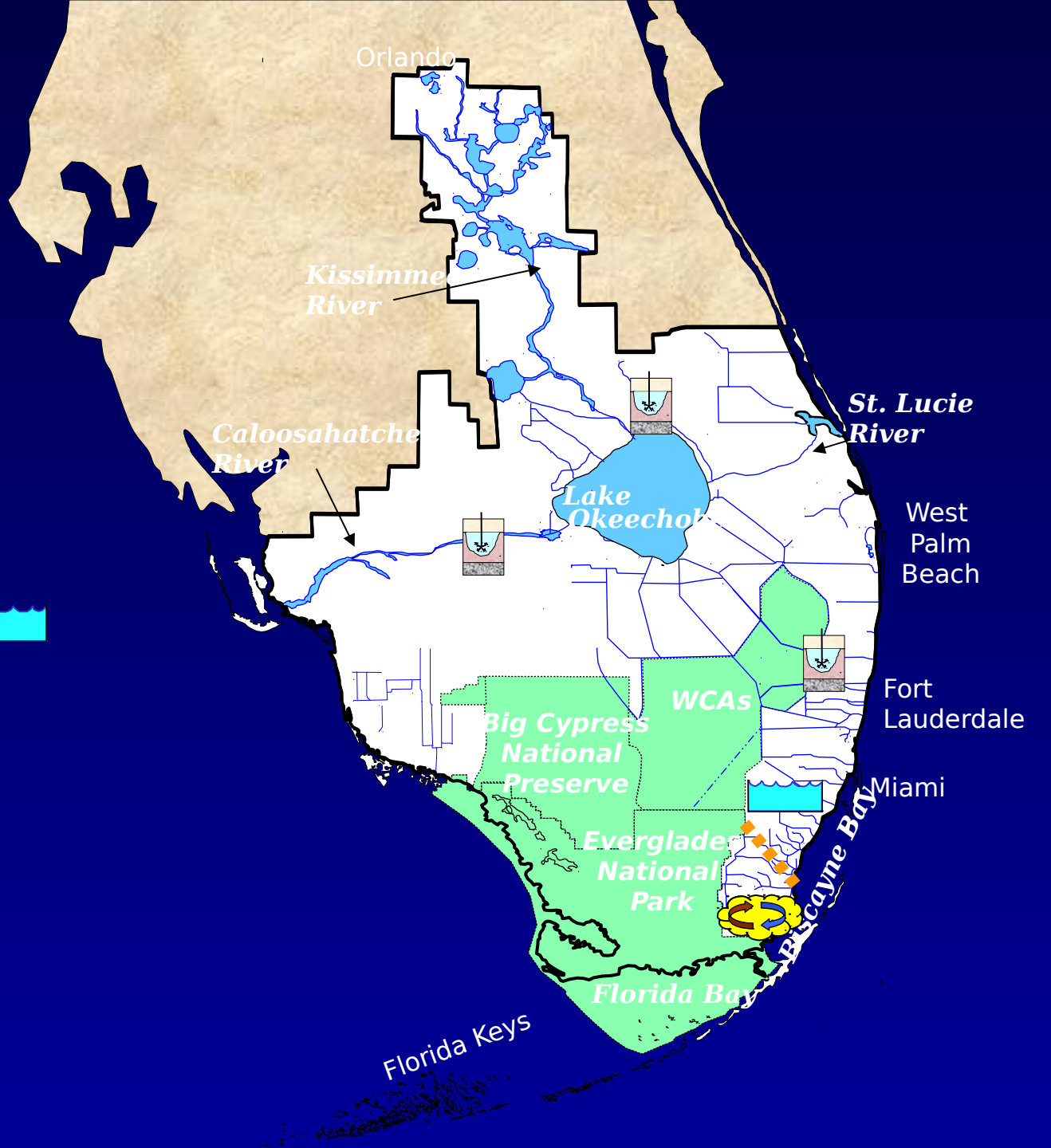
2 **Hillsboro ASR Pilot**

3 **Caloosahatchee (C-43) River ASR Pilot**

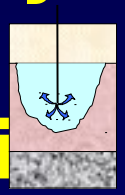
4 **Lake Belt In-Ground Reservoir Technology Pilot**

5 **L-31N Seepage Management Pilot**

6 **Wastewater Reuse Technology Pilot**



CERP ASR Capacity Correlates with Basin-Specifi Water Availability



Innovation

- Total capacity of regional system
- First major use of recovered water for ecosystem demands

Typical Operating ASR: 5mgd

Las Vegas, Nevada
Largest ASR Currently in Use: 100mgd

CERP:
1,665 mgd

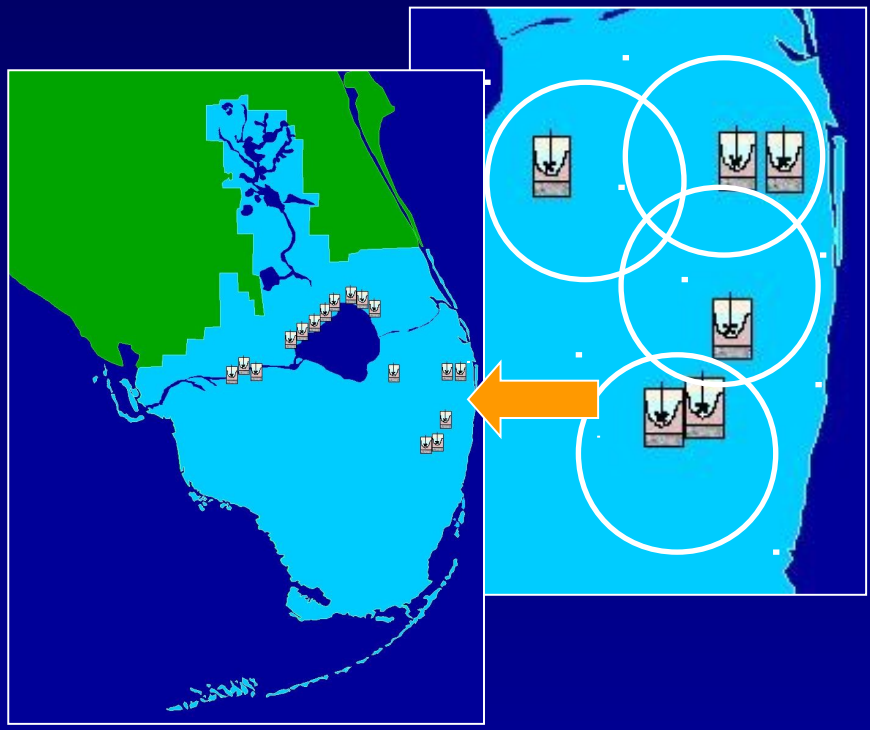
Aquifer Storage & Recovery (ASR)

Addressing Uncertainties

Pilot Projects

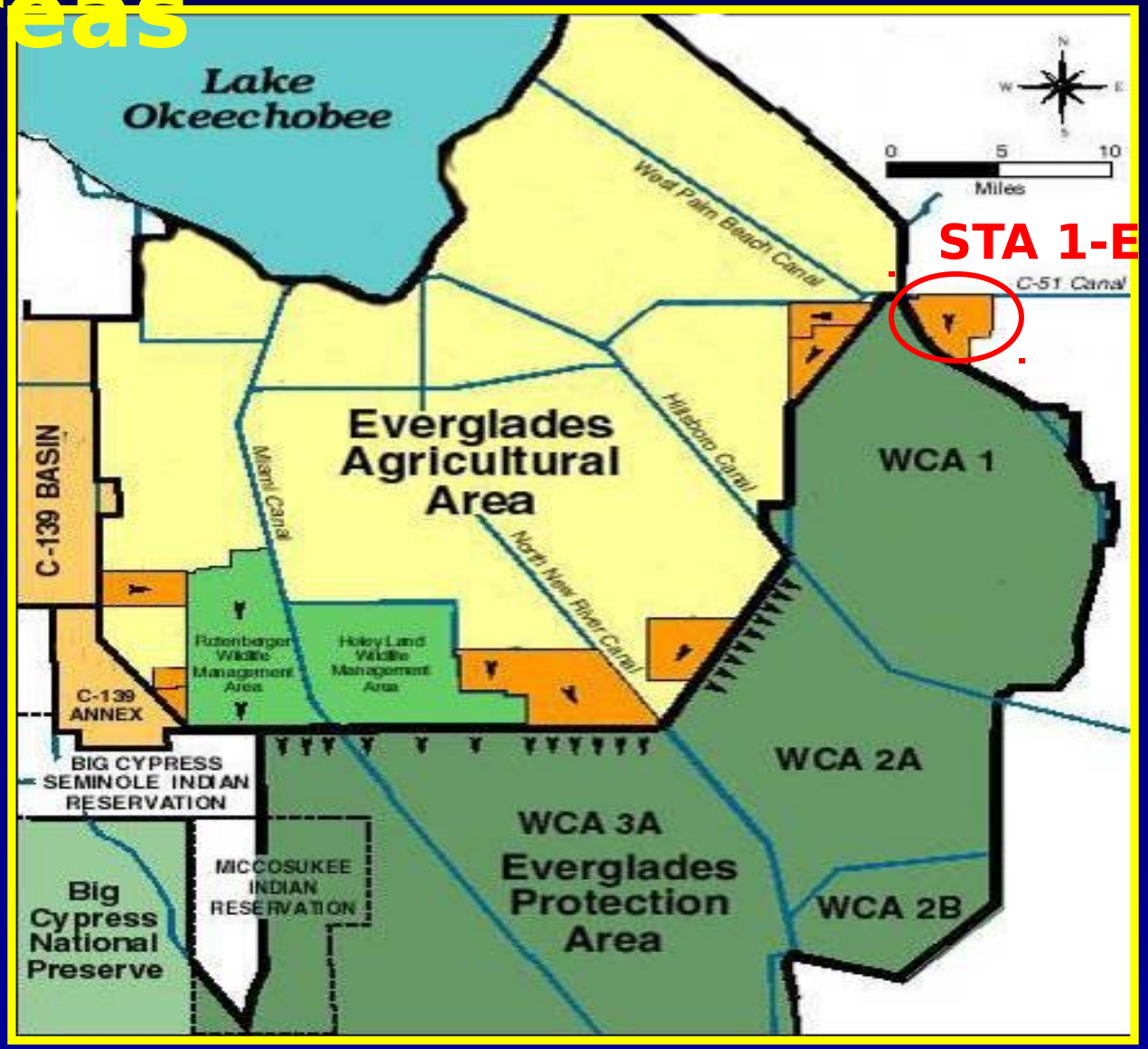
- local/site concerns

Regional Study



- regional concerns

Stormwater Treatment Areas



Stormwater Treatment Area (STA) Technology Innovation

Conceptual Plan to Achieve 10 ppb Phosphorus

Emergent Growth

Submerged Aquatic Vegetation (SAV)

1 yr of sedimentation

2 cm

Periphyton (PSTA)

PHASE 1

PHASE 2

100 ppb P

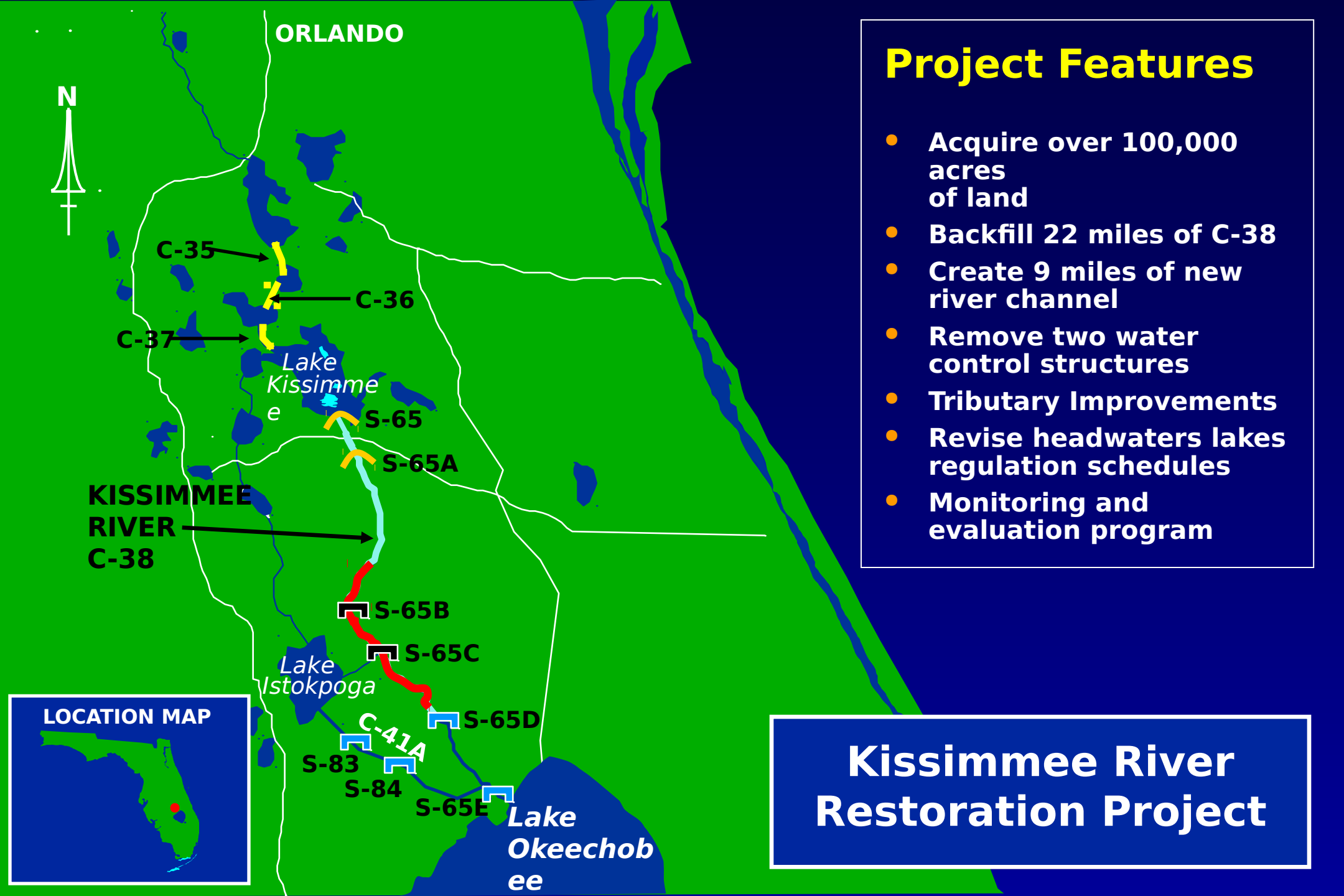
25-50 ppb P

10 ppb P

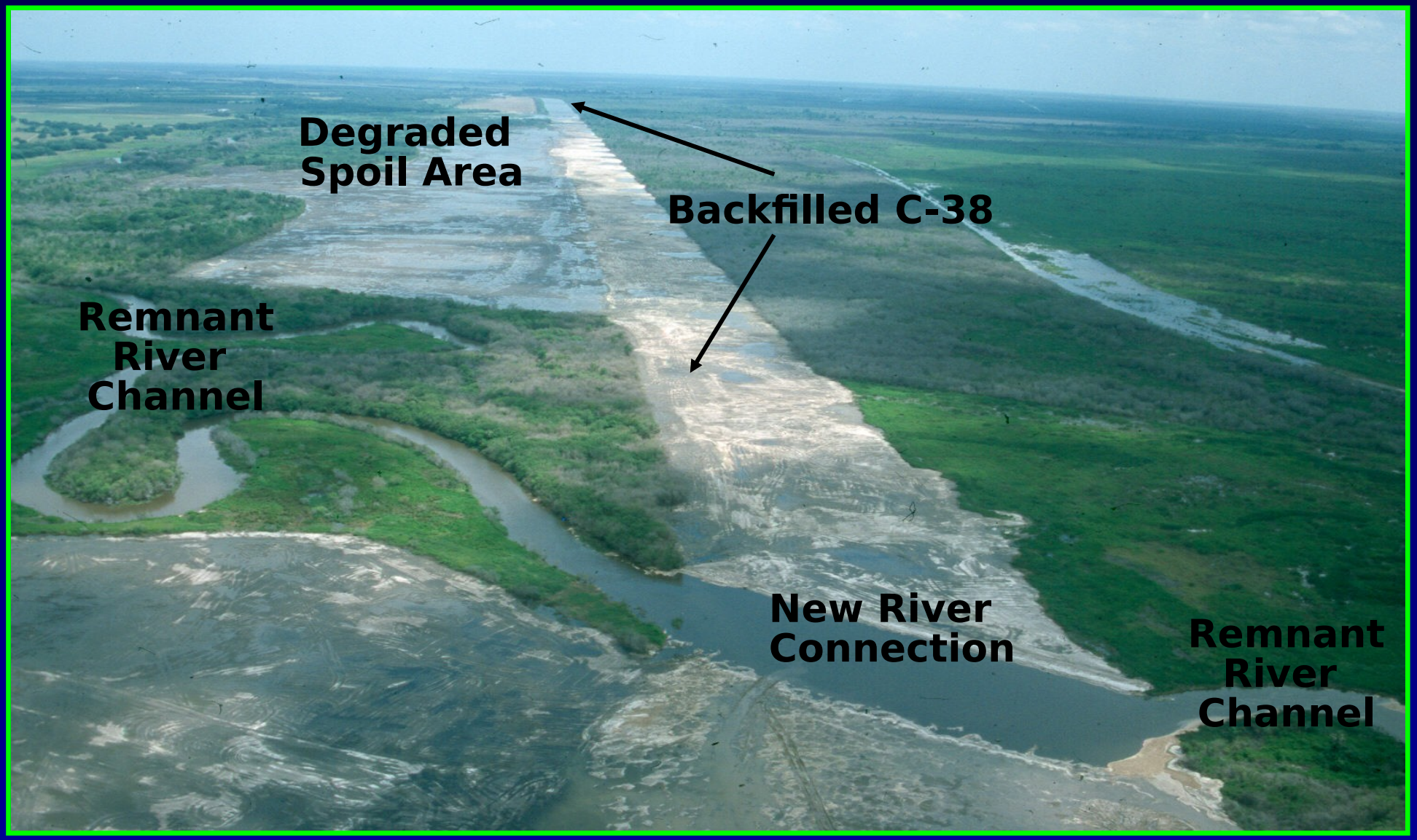
low phosphorus substrate

Pre-Channelized Kissimmee River in 1961

Channelized Kissimmee River


ORLANDO
N
C-35
C-36
C-37
Lake Kissimmee
S-65
S-65A
KISSIMMEE RIVER C-38
S-65B
S-65C
Lake Istokpoga
S-65D
C-41A
S-83
S-84
S-65E
Lake Okeechobee
LOCATION MAP
Project Features
Acquire over 100,000 acres of land
Backfill 22 miles of C-38
Create 9 miles of new river channel
Remove two water control structures
Tributary Improvements
Revise headwaters lakes regulation schedules
Monitoring and evaluation program
Kissimmee River Restoration Project

Anatomy of the Phase I Backfilling



Phase I Backfilling

Phase I Backfilling

Carving New River Channel

S-65B Demolition

June 2000

Restored River – July 2001

Project Status

- Acquisition of 102,061 acres is 99.6% complete
- Construction 1/3 complete
- Headwaters Revitalization Project – underway, will be completed in 2010
- Construction scheduled to be completed - 2012
- Restoration evaluation - through 2017

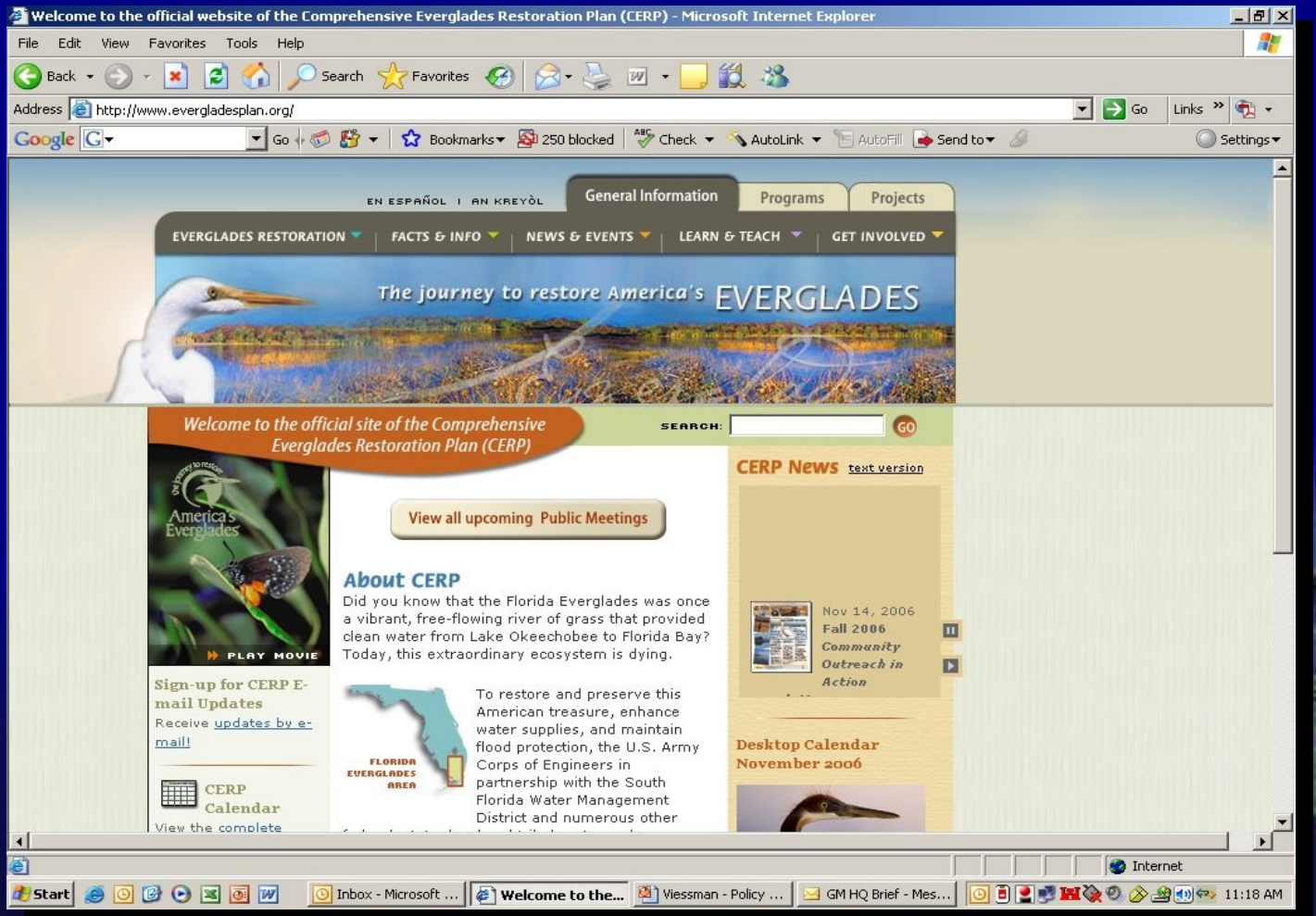
“…restoring the Everglades is not rocket science or brain surgery.

It’s much more complicated than that.”

- Don Boesch

University of Maryland

For more information…
www.evergladesplan.org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The journey to restore America's EVERGLADES
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About CERP
Did you know that the Florida Everglades was once a vibrant, free-flowing river of grass that provided clean water from Lake Okeechobee to Florida Bay? Today, this extraordinary ecosystem is dying.
FLORIDA EVERGLADES AREA
To restore and preserve this American treasure, enhance water supplies, and maintain flood protection, the U.S. Army Corps of Engineers in partnership with the South Florida Water Management District and numerous other
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Thank You!